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SUBJECT: Jeddah's "Perfume" Lake of Sewage

1) Summary: Municipal and Governorate officials say that inadequate sewage treatment is Jeddah's major environment problem. The Mecca Governorate Water Ministry has integrated water management into one ministry and has begun major capital projects to expand the sewage network and wastewater treatment plants, but treatment of 85% of the sewage is at least six years away. Solid waste management, especially of old tires, is another concern. End summary.

Governorate Now Has Agency to Handle Supply and Sewage

2) Director General Mohammed Bughdadi of the Mecca Governorate Water Ministry told us on March 18 that water management functions including water supply and sewage treatment had previously been spread out among several ministries but that those functions had been amalgamated into the Ministry of Water and Electricity two and a half years previously. The Ministry serves 5.4 million in the Mecca Governorate, 88% of whom live in the three major cities of Mecca, Jeddah and Taif. The population is growing at about 2.4% per year, he said.

Sewage Network and Treatment Plants Cover 30% of Population

3) Jeddah Deputy Mayor for Services Khaled Akeel said that only a small portion of Jeddah has a sewage network and treatment plants. Even new areas of the city, surprisingly, have no sewage system. Large contracts have been let, and construction has started but they will take 4-5 years to complete.

¶4. Water Ministry DG Bughdadi said in a separate meeting that his governorate-level "ministry" has a "big problem" with wastewater collection. He said that only 15% of the area of Jeddah municipality, representing 30% of the population, has a sewage collection system. The rest of the people have cesspools or cesspits, he said.

¶5. Of the roughly one million cubic meters (1 MCM) of wastewater that enters the distribution system each day, only about 20% gets any kind of wastewater treatment. The governorate used to put 100,000 cubic meters of sewage per day in the Red Sea but that practice was stopped a year and a half ago, Bughdadi said.

The "Perfume Lake"

¶6. Jeddah's stopgap measure, taken in part to prevent

dumping raw sewage in the Red Sea, has been to collect 30,000 cubic meters (almost 8 million gallons) per day of raw sewage in tankers and truck it to the "Perfume Lake" outside the city. This means at least 2,500 trucks per day making the trip. Since people have to pay private contractors at least \$20 per tanker for this service, the situation is "ripe" for illegal abuses, such as dumping sewage into the storm system that drains into the Red Sea. The possible bursting of the Perfume Lake's earth dam is a major concern as well.

¶7. Jeddah does have two sewage treatment plants, near Old Jeddah, whose treated wastewater flows into two lagoons. Sometimes there are problems, said Akeel, and untreated water flows into the lagoons.

¶8. The city is in charge of the Perfume Lake, said Akeel, and plans to begin some basic treatment of the sewage, such as aeration and bacterial treatment, in 1-2 months. The city will continue to use the Perfume Lake until upgrades to the sewage system become operational.

Wastewater Treatment Inadequacies Being Addressed

¶9. DG Bughdadi said that the Mecca Governorate can treat about 240,000 cubic meters (CM) of sewage per day in one large (100,000 CM/day) and several medium sized (10,000-15,000 CM/day) wastewater treatment plants in Jeddah. The existing plants are being upgraded from secondary treatment to tertiary treatment, and a new plant with daily capacity of 250,000 CM is being built. All those upgrades should be done within two and a half years.

¶10. The ministry started construction a year ago on a new treatment plant near the airport with daily capacity of 250,000 cubic meters. Another 250,000 cubic meters of capacity will be added later, said Bughdadi, ultimately giving his Ministry capacity to treat 1.1 million cubic meters of sewage per day.

¶11. The biggest problem, DG Bughdadi said, is the lack of a network to collect sewage. The national government has allocated \$1.9 billion (SR 7 billion) in several tranches to expand the sewage system, and construction is underway. Bughdadi hopes to have 85-90% coverage and treatment but says it will take at least 6-7 years to reach that goal. The open trenches being dug for sewer pipes are going to be an ongoing problem for years, he said, creating not only a nuisance but a health problem since the stagnant water in those trenches will be a breeding ground for mosquitoes.

Fresh Water Supply from Desalination Plants

¶12. Bughdadi's Ministry is also responsible for distribution of fresh water, which they receive free from the Government-owned "Saline Water Conversion Corporation's" desalination plants. Consumers pay essentially "zero," said Bughdadi, for their water, unless they buy it from tankers.

¶13. Desalinated water represents 97% of the fresh water supply, Bughdadi said. Three large "desal" plants in Jeddah produce about one million cubic meters (about 260 million gallons) of fresh water per day, of which about two-thirds goes to the roughly three million people in Jeddah, with the remainder going outside the municipality. He said that it "all" goes for domestic use but did not indicate what amount is used for landscaping. KSA's first private desal plant has been contracted and should be on-line in 2009 or 2010, he said, and will produce 800,000 cubic meters per day. All the plants use "Multistage Flash" (MSF) technology and cogenerate electricity (hence the Ministry of Electricity and Water.)

Working on Demand Management, Reducing Losses in System

¶14. Bughdadi says he has a "major problem" with leakage in the fresh water distribution system. He estimates, on admittedly scanty data, that 30-35% of the water that enters the system gets lost en route, creating both environmental and economic problems. The system was "slow" to address these issues, he said.

¶15. The Kingdom is halfway through a demand management program that Bughdadi said had been a "phenomenal success" and showed "clear results." He cited a New York program as the model for the program, which distributes water conservation kits and information to consumers. He frankly admitted that the lack of water conservation was "a cultural problem." He is anxious to reduce water use, though, in order to reduce the need for wastewater treatment infrastructure.

Plan to Privatize Water Sector

¶16. The Ministry plans to develop a tariff system but this will be a long-term project that enters the political area, Bughdadi said. The Ministry is working with the Shura Council (Note: This is the appointive consultative body that analyzes and debate important policy issues and advises the King. End note.), the World Bank and private consultants Booz Allen Hamilton on this project. This issue will also be intimately linked to the planned privatization of the water system. Bughdadi complained that the current organization chart for water looks like "an octopus," and he wants to see the sector managed on a clean, commercial basis.

Other Environmental Issues

¶17. Deputy Mayor Akeel also noted concern on solid waste issues, particularly managing old tires. Tires are a problem because the water they trap is a breeding ground for Jeddah's squadrons of mosquitoes. He was also interested in developing recycling programs for cooking oil and engine oil. Comment: These ideas appeared to be at the conceptual stage. End comment.

¶18. Akeel said that Jeddah municipality is in the process of "considering" a contract for an environmental monitoring center that would track the status of air and water pollution in real time from a sensor network around the city. He said that the contract might be let in six months.

Better Late Than Never

¶19. Akeel said that Saudi Arabia was "late" in developing an environmental consciousness. Bughdadi echoed the sentiment separately, saying that the government was "slow" to address sewage and water issues. Akeel said that Saudis are focusing "more and more" on the environment and now consider it to be "very important." An indication of this is the money being spent by the KSA on infrastructure.

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